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‘The proof is in the genes’? Jewish responses to DNA research

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The paper explores Jewish responses to genetic research aimed at reconstructing the history of different Jewish populations. The focus is on two case studies – the book by Rabbi Yaakov Kleiman devoted to DNA studies which attempted to ‘test’ biblical tradition and the reaction of the Bene-Israel Indian Jewish community to the research on their origin. The data is analysed in the context of recent debates in science and technology studies about the biologisation of race and ethnicity. It is demonstrated that though in both cases the recipients of DNA studies stress that Jewishness is not reducible to genetics and that their tradition is correct irrespective of what the results of the tests say, they still assign genetics a significant amount of cognitive authority, quote genetic research in support of their tradition, and interpret its results to suit their own agendas. The paper suggests that that genetics appears to be adding to the wide range of possible rhetorical sources of Jewish self-understanding and identification, however it has not superseded other notions of what it means to be Jewish. It is argued that what may account for this type of engagement with population genetic research is the fact that though it is ascribed unique explanatory power in public discourse, when applied to questions about the history of human populations, it offers inferences which are open to a variety of interpretations.

Keywords: population genetics, Judaism, Jewishness, identity, Israel

In January 2009 *The Times* featured an article by James Hider describing a small group of Jewish and Arab Israelis who promote the idea that Jews and Palestinians are one people. In support of this position they refer to genetic research which suggested a close connection between Jews and Palestinians. In conclusion the article quoted Ariella Oppenheim, one of the geneticists who explored the similarities between the Y chromosomes of Palestinian and Jewish men. She argues that it would be too optimistic to hope that genetic evidence could put an end to the conflict, ‘I think there are very strong ideologies here, and we know also that sometimes brothers fight’ (Hider 2009). Oppenheim’s study was just one in a growing body of genetic research aiming to cast light on the origin of various Jewish communities around the world and on the DNA proximity of different Jewish groups to each other and to their host communities. Many of them in one way or another have attempted to test the Biblical view of Jewish history, such as the idea that all Jews in the world, including those

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who claim affiliation to the Lost Tribes of Israel, share a common ‘genetic’ origin, or that Jewish priests are indeed the descendants of Aaron. What weight, if any at all, do the results of such studies have in discussions of Jewish identity and, to reflect on Ariella Oppenheim’s comment, are they likely to have any socio-political implications?

Elsewhere Tudor Parfitt and I have considered the popular representations of genetic research conducted among Jewish communities and particularly among two groups with ‘mysterious’ origins – the Judaising Lemba movement of southern Africa and the Bene-Israel of India. Here I would like to situate the discussion about the role that genetic research may play in matters of Jewish identity arbitration within the broader debate which has recently developed in social sciences about the biologisation of race and ethnicity.

The paper will focus on two case studies which provide examples of ‘genetic’ evidence being incorporated in discourses about Jewish identity. One is a book entitled *DNA and Tradition* by Rabbi Yaakov Kleiman, which reflects on a wide range of genetic studies conducted among the Jews. The other one comes from the study that we conducted on the Bene-Israel responses to DNA tests. It will be demonstrated that in both cases the recipients of DNA studies stress that Jewishness is not reducible to genetics and that their tradition is correct irrespective of what the results of the tests say. However, they still assign genetics a significant amount of cognitive authority, quote genetic research in support of their tradition, and interpret its results freely to suit their own agendas. It will be suggested that on the one hand genetics appears to be adding to the wide range of possible rhetorical sources of Jewish self-understanding and identification. However, it will be also demonstrated that this new ‘genetic identity’ seems to owe its emergence to ideas about race and genealogy already present in the Jewish tradition, and that it has not superseded other notions of what it means to be Jewish. Finally, it will be argued that what may account for this type of engagement with population genetic research is the fact that though it is ascribed unique explanatory power in public discourse, when applied to questions about the history of human populations, it offers inferences which are open to a variety of interpretations.

Debates about Jewish identity.

The problem of the relationship between different dimensions of Jewish identity, some of which are seen to be embedded in Jewish genealogy and others are construed along the lines of cultural and religious affiliation is one of the central issues in anthropology and cultural studies of Judaism. The question about what it means to be Jewish is also probably one of the most hotly debated ones in the context of Israeli immigration policies, as well as in the public discourse both in Israel and among Jewish communities world-wide.

According to the *halakha*, or Jewish religious law, which includes biblical law and later Talmudic and rabbinical law and tradition, a person is considered to be Jewish either if their mother is Jewish, or if they formally convert into Judaism. Conversion itself establishes a genealogical connection between the initiate and the Jewish people, as the former is seen as being born into the Jewish community. Israel is a democracy governed by civil laws, but it is also a Jewish state, where halakhic legal opinions explicitly inform some parts of the law. For instance, issues of personal status are regulated by religious authorities. This creates a number of political and social problems in determining who is Jewish and who is eligible to get married in Israel. The situation is often particularly difficult for new immigrants whose Jewishness may be put into doubt by orthodox rabbinic authorities (Kahn 2000: 73).

The question of what constitutes Jewish culture is also debated both in academic Jewish Studies and in the communities. The more conventional discourse about Judaism and Jewish tradition portrays some practices and beliefs as part and parcel of Jewish culture. As Jonathan Webber observes, 'the feeling that one does not know or understand Jewish culture is encountered often and indeed is very much a part of the ethnography of today's Jewish world' (Webber 2003: 321). Indeed, some scholars have found useful to distinguish between 'thick' and 'thin' Jewish culture or 'thick' and 'thin' Jewish identities.² Thus, 'thick' Jewish culture is described as multidimensional and multilayered and inclusive of a wide range of commitments to the Jewish tradition of a 'communal, cultural, ethical, and emotional nature' (Liebman 2003: 346). At the same time, 'thin' Jewish culture is seen as a characteristic of individuals with 'impoverished layers of Jewish identity', who are 'reluctant to accept any binding definitions of Jewishness' (Kornblatt 2003P????). And yet, as Webber reminds us, 'in practice, what many Jews would see as their "culture" is often a rather

² See Liebman, Cooper, Klier, Gitelman, Gudonis in Gitelman et al 2003.

arbitrary selection' and 'today's voluntary Jews are to a great extent self-made cultural *bricoleurs*, constructing their Jewishness ... as they go' (Webber 2003: 320-3).

In academic Jewish Studies more essentialist conceptualisations of Jewish identity have recently been challenged by commentators coming from the perspective of critical theory who generally see the theoretical foundations of essentialist thinking as problematic. Thus, Laurence Silberstein drawing upon Judith Butler's formulation has suggested an approach which reconfigures such contested terms as *Jew*, *Judaism* and *Jewish* into a site of 'permanent openness and resignifiability' (Silberstein 2000: 13). At the same time, others have argued that this approach undermines efforts to maintain collective Jewish identities (Silberstein 2000: 1-13).

In Israel, further complexity to the question about Jewish cultural diversity is added by the fact that society is effectively divided into various *edot*, or groups of repatriates from different parts of the world, who maintain the cultural and social specificities imported from their countries of origin. The divide between Ashkenazi Jews of 'Western' extraction, and Sephardi and/or Mizrahi (literally meaning Eastern) Jews appear to be particularly pronounced (Khazzoom 2003, Shohat 1988, Shohat 1999).

At the same time, the idea that Jews are a people connected to each other on a 'biological' level has been promoted by Zionist ideologues. This racialisation of Jewish identity in the rhetoric of the founders of Zionism was a response to the shift from Christian anti-Semitism to racial anti-Semitism, which occurred in Europe in the late nineteenth century. This new wave of anti-Jewish sentiment grounded many of the old-standing stereotypes about the Jews in their physicality and therefore aimed to close the door to assimilation (Weikart 2006). As John Efron has suggested, in Europe this effected the emergence of 'race science' in the Jewish communities themselves who saw in it 'a new, "scientific" paradigm and agenda of Jewish self-definition and self-perception' (Efron 1994).

Given the prominence that genealogy has in debates about Jewish identity it is not surprising that genetic research on Jewish communities did not pass unnoticed by the public discourse either in the State of Israel or in the Diaspora. As Michal Nahman has observed, in Israel, 'the very recent inception of the state requires much rhetorical and ideological work to naturalize the connection between the body, the individual, the nation, religion and the homeland' (Nahman 2008: 117). In fact, research on the

genetic polymorphism of Israeli communities has been going on in the Jewish State since the 1950s (Falk 2006). Does genetic research have the potential to influence contemporary understandings of what it means to be Jewish and to re-inforce definitions of Jewishness along the lines of common physicality? Before we consider specific case studies in Jewish responses to DNA tests it is necessary to have a brief look at the wider theoretical discussion about the social and cultural implications of genetic research in general and of population genetics in particular.

Geneticization of ethnicity?

Last two decades have witnessed a debate in social sciences about the degree to which the knowledge and practices stemming from genetics and biotechnology have impacted culture and society. This debate revolved about what became to be known as the ‘geneticization thesis’. The term geneticization was coined by sociologist Abby Lippman, who defined it as ‘an ongoing process by which differences between individuals are reduced to their deoxyribonucleic acid (DNA) codes, with most disorders, behaviors and physiological variations defined, at least in part, as genetic in origin’ (1991: 19). Lippman’s ideas about geneticization are based on her research into the effect of genetic counselling and prenatal genetic screening on women’s lives. Lippman’s argument is that genetic explanations for diseases and behaviours are gaining weight, and that this phenomenon requires critical attention of social sciences. Lippman sees geneticization as an inherently conservative trend which reinforces the idea of drawing distinctions between social groups on the basis of their biological traits. Similarly, anthropologist Sarah Franklin has suggested the expression ‘genetic essentialism’ to explore and critique ‘scientific discourse... with the potential to establish social categories based on an essential truth about the body’ (1993: 34)ⁱ.

Both concepts have proved to be very fruitful and have been used in social sciences to describe not just medical practice, but also the way genetic explanations are represented in the public discourse (Nelkin and Lindee 1995, Van Dijck 1998). However, they have also been challenged. For instance, Celeste Condit in her study of the mass media representations of genetic research in the US has demonstrated that in the 1990s public discourse about genetics appeared to be significantly less deterministic than back in the 1960s and 1970s (Condit 1998, for an overview see Hedgecoe 1998 and 2006).

Other scholars have focused on the impact of genetics on the reconceptualisation of life and the relationship between nature and culture and have challenged the assumption that genetic explanations necessarily play a negative and restrictive role in medicine and society. Instead, they have demonstrated how genetics can facilitate the emergence of new and more diverse group identities. Thus, anthropologist Paul Rabinow has famously suggested that ‘the new genetics will prove to be an infinitely greater force for reshaping society and life than was the revolution in physics, because it will be embedded throughout the social fabric at the microlevel by medical practices and a variety of other discourses’ (1992: 241). Writing at the dawn of the Human Genome Project he argued that ‘[i]n the future, the new genetics will cease to be a biological metaphor for modern society and will become instead a circulation network of identity terms and restriction loci, around which and through which a truly new type of autoproductio will emerge’. This type of autoproductio Rabinow calls biosociality, where ‘nature will be modeled on culture understood as practice’ (1992: 241). In his view, nature will be changed through culture and thus will become artificial, which would bridge the gap between nature and culture (1992: 241). Rabinow suggests that new identities will emerge on the basis of biotechnological screening with new social groups forming around specific diseases, who would lobby their interests (1992: 244). He does not deny that genetics may be used to reinforce older cultural constructions of biological identities, such as race and gender identities (1992: 245), but suggests that the development of genetic technology may have some beneficial outcomes, such as more opportunities and better psychological and social climate for the disabled. Similarly Nikolas Rose and Carlos Novas have demonstrated how adopting a ‘genetic identity’ may benefit disease groups (2000).

In the last decade a number of authors have explored the ‘geneticization thesis’ in the context of DNA research that has engaged with concepts of race and ethnicity. Indeed, recent years have seen an increase in the number of studies in population genetics that appear to be looking for molecular differences among human populations. Thus, in 2005 the first ‘racially’ tailored drug BiDil was launched which was supposed to treat hypotension among African Americans (Duster 2005, Fausto-Sterling 2004, Kahn 2004). Genetic conditions, such as sickle cell anemia, Tay-Sachs and cystic fibrosis in medical literature (as well as in public imagination) became associated with specific ‘ethnic’ or ‘racial’ communities (Wailoo and Pemberton

2004). Genetic studies on Jewish groups considered here are just a small fraction of research in what became to be known as genetic anthropology or genetic history (Goldstein 2008: 3), which aims to reconstruct the history of human migrations and cast light on the early history of groups with ‘mysterious origins’ (Brodwin 2002, Davis 2004, Elliott 2003, Johnston 2003).

Some scholars have suggested that these studies indicate a worrying trend in genetic research. It was thought to have been proven once and for all that categories such as race and ethnicity were purely social categories with minimal, if any at all, biological basis (Abu El-Haj 2007, Palmie 2007, Reardon 2005, Skinner 2006, Smart et al 2008). Yet, new genetic studies signal, to use Troy Duster’s term, a ‘re-biologisation of race’ (Duster 2005).

At the same time, others have argued that new genetic knowledge hardly superseded communal traditions or led to the emergence of new forms of belonging which would be at odds with those already in existence. Thus, Nikolas Rose hesitates to conclude that we are witnessing the rise of new genetic determinism. He suggests that the biopolitics of the twenty-first century ‘does not seek to legitimate inequality but to intervene upon its consequences (2007: 167) and that ‘ideas about biological, biomedical, and genetic identity will certainly infuse, interact, combine and contest with other identity claims’, but they can hardly be expected ever to supplant them (2007: 113).

Barbara Prainsack and Yael Hashiloni-Dolev have argued that genetic ‘evidence’ pertaining to matters of ethnicity has hardly set aside other notions of relatedness (Prainsack and Hashiloni-Dolev forthcoming). Alondra Nelson (2008), in her study of the genetic ancestry tests offered to African American and Black British citizens, has convincingly argued that those who do these tests in an attempt to establish which part of Africa their ancestors may be from, do not accept the results at face value but re-interpret them in light of their own ‘genealogical aspirations’. Nelson suggested that ‘while the geneticization of race and ethnicity may be the basic logic of genetic genealogy testing, it is not necessarily its inexorable outcome’ (2008, 761). Similarly, I have examined elsewhere the historical context and the possible socio-political implications of studies aiming to explore the ‘genetic profile’ of South Asian populations and to cast light on the ‘ethnic’ composition of the caste system. An analysis of the main papers that stemmed from these genetic investigations and of the way they were received on the subcontinent suggests that these studies, which

never reached a consensus about the history of caste formation, were used selectively by different social groups to strengthen their own political agendas (Egorova 2009).

Genetic research on Jewish communities

It is in the context of this discussion that I would like to explore some of the responses to what is often referred to in popular and semi-academic literature as ‘Jewish genetics’. The more widely publicised genetic studies on Jewish communities include those which investigated genetic relatedness of different Jewish groups world-wide and research on the *Kohanim* (Hebrew for Cohens, Jewish priests)³. The first type of studies aimed to establish degrees of ‘genetic separation’ between different Jewish communities. The one which appears to have attracted most mass media attention was led by Michael Hammer from the University of Arizona (Hammer et al. 2000). This research focused on paternally transmitted Y-chromosome genetic markers from a dataset derived from 7 Jewish groups from different countries and ‘cultural’ groups (from Ashkenazi to Ethiopian) and 16 non-Jewish groups from similar geographic locations. The goal of Hammer’s team was to establish whether contemporary diversity of ‘Jewish’ Y-chromosomes derived from a common Middle Eastern population or from an admixture with non-Jewish neighbours in the Diaspora. The study concluded that ‘despite their long-term residence in different countries and isolation from each other, most Jewish populations were not significantly different from each other at the genetic level’ and that apparently ‘the paternal gene pools of Jewish communities from Europe, North Africa, and the Middle East descended from a common Middle Eastern ancestral population’ (Hammer et al 2000: 6769).

Referring to earlier studies which attempted to answer the question of the alleged genetic ‘homogeneity’ of the Jews using ‘classical’ genetic markers (for instance, blood groups, enzymes or serum proteins) the authors observe that this prior research had made radically differing inferences about the degree to which present-day Jewish communities were genetically related to each other and to neighbouring non-Jewish groups. The explanation provided for this in Hammer’s paper is that variations explored in previous studies were influenced by natural selection, while

³ For an overview of scientific papers see www.khazaria.com/genetics/abstracts.html, for analysis, Parfitt and Egorova (2006).

contemporary nucleotide-level studies could circumvent some of such complications. Hence, the results are rhetorically presented as the ultimate answer to the mystery of Jewish origins (Hammer et al 2000).

Another set of studies that received a lot of media attention both in the Jewish and mainstream press in Israel and in the West were conducted on the Kohanim (Jewish priests), who according to one of the Biblical traditions are supposed to be the descendants of Aaron, the brother of Moses. In ancient Jerusalem their functions centered around the Temple. Later, in the Diaspora, the priests survived as a separate category of Jews whose status is transmitted from father to son. There are still a number of rites in Judaism that can be performed only by the Cohens. Priests also need to abide by stricter laws of ritual purity, which inter alia, prohibit them marrying proselytes and divorcees (Haran et al 2007). Geneticists from the Haifa Technion (Israel) and University College London decided to test the hypothesis about the alleged common origin of Jewish priests and conducted a study, which looked at genetic markers on the Y chromosome obtained from priests from different Jewish communities. Y chromosome is transmitted paternally, just like the status of the priest, so it was assumed that if there was any truth to the Biblical tradition, it would show in similar markers on the Y chromosome of the tested. A study analysing samples from 306 male Jews determined that a single haplotype,⁴ labelled the Cohen Modal Haplotype (CMH) was quite frequent in both Ashkenazi and Sephardi Kohanim, and that its origin could be traced to about 3000 years before present, early during Temple period (Thomas et al. 1998). All in all, the study sets out to test the Biblical tradition and in two papers published in *Nature*, the impression is given that they could be viewed as corroborating this tradition (Skorecki et al. 1997).

Finally, another study on Jewish populations concerned their maternal ancestors. It argued that if the system of matrilineal inheritance of Jewish identity had been strictly adhered to, it would be reflected in differences of mitochondrial and Y chromosome genetic variation within Jewish communities. The study analyzed the maternally inherited mitochondrial DNA from nine geographically separated Jewish groups and eight surrounding populations. The results suggested that most Jewish communities were found by relatively few women and that genetic input from host populations was limited on the female side. On the basis of this evidence the study

⁴ A haplotype is a combination of alleles on multiple loci that are transmitted together on the same chromosome.

concluded that ‘Jewish populations... appear to represent an example in which cultural practice - in this case female-defined ethnicity – has had a profound effect on patterns of genetic variation’ (Thomas et al 2002: 1417).

These and other genetic studies on Jewish populations have proved to be extremely newsworthy and appeared in the mainstream and Jewish secular public discourse in a number of contexts. Here I would like to focus on two cases which reflect the way religious Jews responded to the results of the tests and therefore illuminate the relationship between genetic knowledge and tradition particularly well.

Bene-Israel

The Bene-Israel represent one of the three main Jewish communities of India. The early history of the Bene-Israel is obscure and although they have been practicing a recognisable form of Judaism and identified themselves as part of world Jewry since at least the middle of the nineteenth century, for most of this time they had to fight to be recognised as *bona fide* Jews first by other Jewish communities in India and abroad, and then by Israeli religious authorities. In Israel in the 1960s the Bene-Israel had to go through a painful struggle to be allowed to marry outside of their community.⁵

In 1997 a genetic study was initiated to determine whether the Cohen Modal Haplotype would be found among the Bene-Israel. The results proved to be positive and in 2002 made to a front-page article of the *Times of India*, a major Indian newspaper. The article labelled the CMH the ‘Moses gene’ and the way the results were presented there left the reader with a distinct impression that all the Bene-Israel were carriers of this ‘gene’. The opening paragraph of the article stated the following:

More than 2,000 years after they first claimed to have set foot in India, the mystery of the world’s most obscure Jewish community – the Marathi-speaking Bene Israel – may finally have been solved with genetic carbon-dating revealing they carry the unusual Moses gene that would make them, literally, the original children of Israel. For years of DNA tests on the 4,000

⁵ For more information on the Bene-Israel, see, for instance, Strizower 1971, Weil 1977, Isenberg 1988, Roland 1998, Egorova 2006.

strong Bene Israel... indicates they are probable descendants of a small group of hereditary Israelite priests or Cohanim (Ahmed 2002).

The article went on to recount the history of the Bene-Israel struggle for recognition and concluded that now, since the results of the tests were revealed, 'the Bene Israel could claim to be the purest of the pure' (Ahmed 2002).

Tudor Parfitt and I visited the community in Mumbai several months after the article came out and had a chance to discuss the results of the tests with the community as well as to attend two events organised by the Bene-Israel leaders specifically around the topic of the tests. We have discussed the reaction of the community to the tests elsewhere (Parfitt and Egorova 2006, chapter 8), but here I would like to summarise the responses to the tests that we received by distributing a questionnaire among the Bene-Israel on the Konkan coast. The questions asked the respondents what they knew about the tests, how they learnt about them and whether the results mattered for them at all.

We received 94 responses. Practically all respondents mentioned in their answers that no genetic tests were needed to prove to the Bene-Israel that they were Jewish, as they had always known that. A small number of responses were quite dismissive of genetic research - 'We were always Jews and better Jews than now'. In some responses it was suggested that the very fact that such tests were conducted was a reflection of the bad treatment that the Bene-Israel had been accorded in Israel and demonstrated that even today they were not recognised as 'real Jews'.

Yet others thought that the tests were conducted in order to finally clear the name of the Bene-Israel. As one respondent put it, the idea of the tests was to give the Bene-Israel 'equal status in Israel', so that they would be considered "pure Jews" and to stop discrimination in case of jobs, education, marriages, etc. The majority of answers suggested that though no tests were needed to convince the Bene-Israel themselves that they were Jewish, they would help a lot in making the community recognised as such by other Jewish groups and in Israel. A number of respondents stated that the tests provided scientific proof for the tradition passed on to them by their grandparents, and that once the news about their results reached other Jews, it would clear all doubts about the origin of the Bene-Israel. As one of them put it, the results of the tests would be 'important for White Jews who want to know who we are and where we come from'.

Not surprisingly, the sensational ‘discovery’ that all Bene-Israel were the direct descendants of Moses and the ‘purest’ of all Jews, which the *Times of India* attributed to this research, was picked up in the community. About a third of our respondents mentioned in their answers that tests demonstrated that they were ‘the true descendants of Moses’ and that that was news for them. Some observed that they were proud to have the genes of the Kohanim.

Interestingly, the Bene-Israel featured also in the above-mentioned study on the maternal ancestors of different Jewish communities, which analysed mitochondrial DNA from 9 Jewish groups around the world (Thomas et al. 2002). The mtDNA of the Bene-Israel sample was shown to be very similar to that of the local Indian sample, which led researchers to conclude that the ‘founding mothers’ of the Bene-Israel were most likely to be of local rather than Middle Eastern origin. This result could be interpreted as rendering the Bene-Israel ‘halakhically’ non-Jewish, but fortunately it has not been picked up by the media, nor was it noticed by the community. Thus, it appears that it is the result which fitted the already established tradition better than became widely popularised, rather than the one which went against local narratives of origin.

Rabbi Yaacov Kleiman

Rabbi Yaacov Kleiman is the Director of the Centre for Kohanim located in Jerusalem. The aim of the Centre is to promote awareness of priestly heritage and duties among the kohens and the levites.⁶ Rabbi Kleiman particularly welcomed the genetic studies conducted on the Kohanim and on the origins of various Jewish communities, and in 2004 published a book developing the idea that DNA research supports the Jewish historical tradition (Kleiman 2004).

The book entitled *DNA tradition: the genetic link to the ancient Hebrews* argues that DNA confirms that Abraham was a living person, that the Twelve Tribes of Israel really exist, and that the present day Jewish priests could be traced to a common ancestor, the founder of the lineage. In the introduction, Rabbi Kleiman posits that until recently such questions were decided on the basis of faith and ‘belief in the Bible as God’s revealed wisdom included a belief in its historical and

⁶ www.cohen-levi.org.

genealogical accuracy' (Kleiman 2004: 9). However, now, in an 'age of reason' knowledge gained through science could shed light on the reliability of the Biblical tradition (p.9). The book chapter by chapter goes through different genetic studies focusing on research on the Kohanim, on genetic diversity of Jewish communities in different parts of the world, and on Jewish mothers. In Kleiman's view, they all support the Biblical tradition.

In a number of chapters, as well as on the web-site of the Centre for Kohanim, where the topic of genetic research also has significant presence, he stresses the importance of priestly genealogy. One of the objectives of the Centre for Kohanim is to prepare Jewish priests for the possible future Temple service:

Having maintained an unbroken family line since Aaron, the father of the Kohanim, for more than 3000 years, present day Kohanim are unique and precious. Today's Kohanim must do all in their power to ensure the continuation of this blessed lineage. Until the service of the Temple in Jerusalem is restored, it is important for Kohanim today to maintain identity and observance, increase learning, and to become active in areas related to Kohanim (Kleiman 2004: 137) .

The discovery of the Cohen Modal Haplotype is seen as a proof of the correctness of the biblical tradition, which for Rabbi Kleiman also gives hope that one day the Temple will be restored. He also asserts that the fact that a significant proportion of the tested priests had the CMH can be considered 'a scientific testimony to the historical integrity of Jewish family faithfulness' (p.21). It may be argued that by the same token the fact that not all the priests who participated in the study had the 'Cohanic' set of markers may be interpreted as indicative of the failure on the part of a lot of Jewish priests to maintain the purity of their lineage. However, Rabbi Kleiman prefers to see the glass as half full. Moreover, throughout the book he stresses the importance of the relative 'genetic homogeneity' of the Jews: 'In the history of mankind only the Jewish people has retained its genetic identity for over 100 generations while being scattered throughout the world – truly unique and inspiring. Perhaps, even more unique and inspiring, is that this most unlikely scenario expresses

both a prophecy and a promise' (Kleiman 2004: 35). Thus, the results of genetic research are seen as divine revelation and a confirmation of God's covenant with the Jewish people.

In respect of the studies on 'Jewish mothers', he argues that the finding that the community descends from a limited number of 'matriarchs' is again 'consistent with the matrilineal definition of Jewish "citizenship" (p.41). The conclusion about the possible 'non-Middle Eastern' origin of the Jewish founding mothers is also seen as consistent with the tradition and is explained by conversions into Judaism.

At the same time, throughout the book Kleiman keeps insisting that Jewish identity has little to do with genetics. He suggests that 'research results are of general interest regarding origins, ancestry, history – but are not applicable to individuals or communities in terms of their Jewish identity', which Kleiman describes as '*Metaphysical* and based on tradition, law, culture and custom and not *Physical* considerations (including DNA)' [emphasis original] (Kleiman 2004: 15). Quite apart from that, he stresses that anybody can become Jewish by converting to Judaism (Kleiman 2004: 21). As far as research on Jewish priests is concerned, Kleiman is adamant that the Cohen Modal Haplotype is not an 'absolute proof' of one's Cohanic status. He reminds us that this status is partly determined by the side of the mother (who should not be among the women a Jewish priest is not allowed to marry), and that the CMH is not unique to Jewish priests anyway, as it is also present in some non-Jewish communities (Kleiman 2004: 20).

Genetics and Judaism

How do these responses to DNA tests correspond to the way knowledge stemming from the life sciences is generally interpreted in mainstream Judaism? Michael Hammer, one of the scientists involved in the study on Jewish priests, expressed concern in an interview with the *Jewish Bulletin of Northern California* that after the publication of the results, geneticists started receiving phone calls from members of the community who wanted to be 'scientifically' tested to determine whether they were priests (Parfitt and Egorova 2006: 36-37).

However, on the whole rabbis appear to be very far from ascribing any *halakhic* value to such tests. In 2003 we interviewed three senior rabbis in South

Africa about the way their congregations received news about genetic studies of the Lemba, a Judaizing movement of a more recent origin (for more information see Parfitt 1997). In the 1990s genetic research was conducted among them with an aim to establish whether they might indeed be of Middle Eastern origin. One of the studies found that there was the Cohen Modal Haplotype in the Lemba sample, which generated a lot of media attention (Parfitt and Egorova 2006). The rabbis we interviewed confirmed that from the perspective of the halakhah genetic information could not possibly count in determining who is a Jew. In the interview with one of our respondents, the then Chief Rabbi of South Africa Cyril Harris, we mentioned the example of the Beta-Israel of Ethiopia, whose claims on Israelite identity were not quite ‘supported’ genetically. Rabbi Harris replied that this community had already been accepted as Jewish by the Orthodox authorities, and that ‘genetic evidence’ did not matter in the least for him (Parfitt and Egorova 2006: 83). Another rabbi admitted that if a cohen showed to him proof that he had the CMH, on some very personal level he would find it impressive, however, from the perspective of the halakhah this would mean nothing (Parfitt and Egorova 2006: 82).

Some illuminating examples of how contemporary rabbis assess the importance of genetic material in determining kin ties and the status of the Jew are presented in Susan Martha Kahn’s ethnography of new reproductive technologies in Israel. For instance, she demonstrates how issues of surrogate motherhood and egg donation have raised the question about the status of biogenetic material in determining motherhood. Some rabbis advocate a ‘genetic’ definition of motherhood. For them, the mother is the one who supplied the eggs. Some rabbis have argued that a child born as a result of ovum donation should be considered to have two mothers, one genetic and one gestational. Others suggest such child should be considered to have no mother at all. Yet, the majority opinion is that it is the mother who gestates and gives birth to the child that is his real mother, because this view of motherhood corresponds better to the halakhic tradition (Kahn 128-9).⁷

Conclusion

⁷ For a detailed discussion of rabbinic responses to ethical issues raised by biotechnology see Wahrman (2002).

So, what is the significance of genetics for debates about Jewish identity? Though the CMH, or any other ‘genetic marker’ would not make an individual halakhically Jewish, genetics appears to be used as a means of ‘thickening’ one’s Jewishness. Having a ‘genetic’ connection to the Jewish people has clearly become one of the numerous markers of Jewish identity, though it is very far from being a dominating signifier of Jewishness in public imagination or rabbinic discourse. In the Jewish tradition constructions of the ‘biological’ basis of Jewishness appear to be elastic enough both to use ‘genetic evidence’ as a rhetorical tool to prove one’s Jewishness and to discard it as irrelevant. This creates a conceptual space in which genetic knowledge can be used both to contest and to reproduce tradition.

What light do the case studies considered here cast on the debate about the geneticization thesis and the re-biologization of race? It may be argued that these studies reinforce the discourse about Jewish people sharing common physicality, which historically was far from being liberal. At the same time, as the responses to genetic studies examined here demonstrate, in matters of self-identification ‘genetic Jewishness’ is a marker of choice. Thus, both Rabbi Kleiman and our respondents from the Bene-Israel community stress that if the results of the tests had been ‘negative’, it would not have changed their view of their tradition. However, as they happened to be ‘positive’ (or could be construed as positive!), they were immediately accepted and used as a ‘proof’ of their respective narratives of origin.

Indeed, the study that looked at the maternally transmitted mtDNA and did not reveal any connection between the Bene-Israel and the Middle East, was ignored. Neither the *Times of India*, nor the Bene-Israel themselves seemed to notice that the study that ‘proved’ them to be Jewish had investigated the paternally transmitted Y chromosome, which had little to do with the halakhic definitions of Jewishness. Similarly, Rabbi Kleiman ignored the fact that a significant part of the tested Jewish priests actually did not have the Cohen Modal Haplotype. For him, it was good enough that the study conducted on the priests supported the biblical tradition ‘in principle’.

Anthropologist Michael Carrithers has observed that we should be paying more attention to the ‘rhetorical edge’ of culture (Carrithers 2005a, 2005b, 2009). He maintains that culture ‘exists as a set of potentials and possibilities’ (2009) and that ‘the tools of culture are used by people on one another, to persuade and convince, and so to move the social situation from one state to another’ (2005a: 581). I suggest that

the responses to 'Jewish genetics' considered here are examples of this 'rhetorical edge'. Genetics appears to be just such a tool of culture which is close to hand and could be pulled out of the rhetorical tool box whenever there is a need for it and left to rest when there is no such need.

Why did in both cases presented here genetics prove to be a good rhetorical source? Irrespective of whether the Bene-Israel and Rabbi Kleiman believe in the validity of natural sciences themselves, they are certainly aware of the cognitive authority that it is ascribed to in the West by virtue of its apparently objective methods and context independence. For the Bene-Israel genetic research, conducted by 'Western' and Israeli scientists, at least to a degree represents the same forces and ideologies that in the past had refused to recognise them as Jewish. For Rabbi Kleiman, science is a discourse which had been used to challenge biblical tradition. Therefore any 'scientific' data that could be interpreted as supportive of their tradition were bound to be seen by them as a powerful means of convincing their interlocutors in the validity of their narratives.

Another factor which makes this type of research a good rhetorical tool is that when applied to such complex historical questions as those considered here, genetics appears to be producing results that are very much open to interpretation. It should be noted that genetic studies discussed here were not only represented and interpreted in a variety of ways (some of which were quite far from what the geneticists involved in them would endorse themselves), but they have also been challenged by subsequent research. For instance, in 2008 a paper was published in *PLoS* (Behar et al 2008), which questioned some of the findings presented in Thomas et al 2002. This earlier study suggested that several Jewish communities around the world were founded by a limited number of female ancestors. The more recent study argued almost exactly the opposite. According to Behar et al., the major portion of non-Ashkenazi Jews showed no evidence for a narrower founder effect. Their explanation for this unexpected conclusion was that they were using techniques different from the ones employed in the previous study. This lack of 'scientific' consensus about the origin of Jewish communities may contribute to the emancipatory potential of population genetic research which otherwise has a built-in determinist agenda.

As Marianne Sommer (2008) recently suggested, 'genetic myths seem to turn history into nature and claim the last word'. In cases considered here genetic tests

produced a variety of myths. Which myths claimed the last word appears to have depended on the preferences of the tested and on the political climate in which they were conducted.

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ⁱ For further critical discussion of different aspects of ‘geneticization thesis’ see, for instance, Lippman 1991, Franklin 1993, Nelkin and Lindee 1995, Van Dijck 1998. For a discussion of the ‘genticization thesis’ see Hedgecoe 1998, Ten Have 2001, Condit 1999 .